**Making Comparisons with Picture Graphs**

A Problem-Solving Data Analysis Unit Plan

First Grade at College Place Elementary

Due: December 7, 2012

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**1. Effective teachers know their content.**

* 1. **Topic:** Making Comparisons Using Graphs

**Curriculum:** *Math Expressions*

* 1. **Rationale:**

Understanding, interpreting and creating graphs are all fundamental skills required in all levels in mathematics beyond first grade. Since this unit serves as most students’ first introduction to graphical/visual representations of numerical data and information, it is imperative that students acquire the foundational understanding of both the concepts and procedures associated with graphing. That will facilitate later success during explorations with more advanced and complex graphical formats in higher mathematics, as well as daily adult life.

This unit also focuses on making comparisons using specific vocabulary, which allows for an integration of explicit instruction and practice of English language skills. Highlighting proper academic language use and meaning will help ensure that all students, regardless of their linguistic or socioeconomic background, will learn ways to successfully articulate their understanding of comparisons within and beyond mathematics. As students learn to form comparisons based on data collection, they will see the value in using mathematical and scientific processing to solve problems and explore one’s inquiries. With foundational understandings, positive, relevant and meaningful past learning experiences, and encouragement for all students, some may be more likely to seek further opportunities, including university or career choices pertaining to data collection and analysis. Ideally, this unit will help build a positive, comprehensible foundation in mathematics that could encourage more diversity within that field.

* 1. **Description of Learning:**

If the students are successful in this unit, they will be able to apply a variety of basic skills pertaining to picture graphs. Firstly, students will show their ability to read the graph by locating the key parts of a picture graph and identifying their meaning (for example: labels tell us what data is being presented). Successful interpretation skills will be displayed as students create comparative statements based on their determinations of which item has more/fewer/the most/least. Students will also practice their procedural fluency in addition and subtraction methods, as they calculate how much more/fewer one set of data has compared with another. Finally, successful students will apply their understanding of data collection, graphical representations and comparisons in a final inquiry-based, cooperative group activity, where students survey their classmates and present their findings and reasoning in a presentation.

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| **Unit-Level Learning Targets:** | **Corresponding GLEs:** |
| Skill Learning Target #1: Students will be able to read and interpret picture graphs. | 1.5. A. – Represent data using tallies, tables, picture graphs and bar-type graphs. |
| Skill Learning Target #2: Students will be able to use picture graphs to make comparisons. | 1.5.B. - Ask and answer comparison questions about data. |
| Skill Learning Target #3: Students will be able to create picture graphs based on collected data. | 1.5. A. – Represent data using tallies, tables, picture graphs and bar-type graphs. |

* 1. **Unit-Level Connections with the Development of Conceptual Understanding, Procedural Fluency, Mathematical Reasoning or Problem Solving Skills:**

For young students, the concept of graphic/visual representations of data may be difficult to grasp, as they are abstract depictions of concrete information. This is why instruction and learning tasks frequently use concrete, tangible sets of data to facilitate conceptual comprehension of comparisons, as well as this new data presentation method. In terms of procedural fluency, students will be practicing their basic addition and subtraction to calculate their comparisons with accuracy, in addition to learning the procedures of creating properly formatted picture graphs. Lastly, most of the lessons include opportunities for students to share their methods and reasoning. This ensures that students are exposed to a variety of valid techniques, and can develop the confidence and skills to reasonably question and assess their findings.

* 1. **Essential Question:** How do graphs help us make comparisons and better understand the world around us?

**2. Effective teachers know their learners well.**

**2.1 Context for Learning**

**a.) Academic Development:**

My first grade classroom consists of students with a wide range of abilities in reading and writing, from those just learning phonemic awareness to those comfortable reading or writing full sentences. In terms of artistic development, all the students show a strong desire to create visual representations of their thinking especially in mathematics through the use of “Math Mountains” and other strategies presented by the *Math Expressions* curriculum. They have been working on producing final drafts that shows careful work, attention to detail and effort, which are skills that they will continue to be develop in this unit. This class’ strong community environment and immense comfort with each other also proves valuable during presentations.

**b.) Academic Language Development:**

With 33% of the class identified as English Language Learners and many more students from low socioeconomic backgrounds, the students have shown a satisfactory level of proficiency in social English language; however, academic language comprehension and application is limited. Their young age also shows a limited exposure to academic language, especially in school settings. Age, maturity and certain special needs also indicate an inability to follow multi-step or long directions, or maintain attention for extended periods of time.

**c.) Social and Emotional Development:**

The students have been learning many different social skills and strategies to help build friendships and a safe, cohesive community. The majority of the learners are eager to make friends and appear comfortable in social situations. They exhibit age appropriate abilities in sharing and cooperation, which will allow for cooperative group work opportunities. Students thoroughly enjoy engaging with each other in their learning processes and developing new friendships.

**d.) Family/Community/Cultural Assets:**

After meeting all of my students’ families at curriculum night and parent-teacher conferences, I have seen that the majority of the parents value education and are passionate about their child’s success in school. Because mathematics is commonly seen as difficult subject, many parents are motivated to help their students learn mathematical concepts covered in class. Several students have reported receiving extra guidance from their parents when completing homework activities.

**e.) Dispositions related to our topic:**

With a significant portion of the class requiring supports for English language or attention issues, it has become commonplace to use visual aids during daily instruction. Students are comfortable with visual cues for words and concepts, which should facilitate comprehension of pictorial/graphical representations.

**2.2 Influences on Instructional Strategies, Learning Tasks and Assessments:**

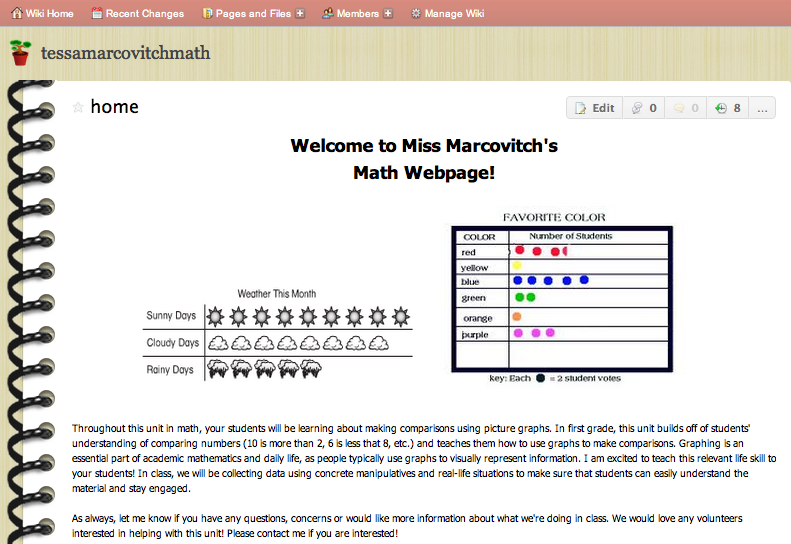
This unit, like many in mathematics, also helps bridge possible language barriers, as comprehension can be expressed through numerical and visual representations (rather than written English). Consequently, more of this class’ helpful parents will be able to participate in their child’s knowledge acquisition of new mathematical skills and concepts, regardless of their English language abilities.

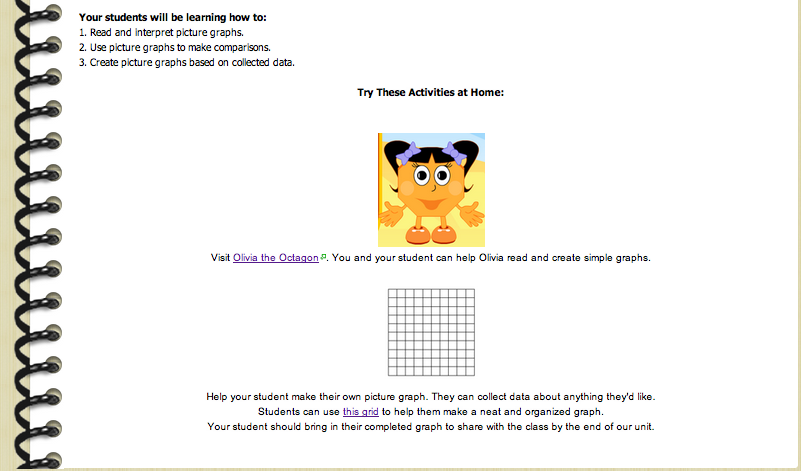
In general, the ability to make comparisons helps people organize and categorize information to better understand themselves and the world around them. I chose to have the students survey their classmates and collect data about their peers (physical characteristics, family life, interests, etc). Collecting and comparing this type of data helps students notice similarities and differences between themselves and their peers. With careful social skill guidance, students will learn to view both the similarities and differences as benefits to the creation of a safe, comfortable, diverse and accepting classroom community.

The students will also understand how collecting, interpreting and analyzing meaningful data can help us learn about the world around us. Beginning the unit with an examination of authentic graphs from the Olympic games highlights the relevance of graphing comprehension to understand current events. Meanwhile that introduction also ties to the school’s mascot (the Olympians) and a theme that is carried throughout the atmosphere, which will hopefully promote engagement and enthusiasm.

**2.3 Family Involvement Webpage:**

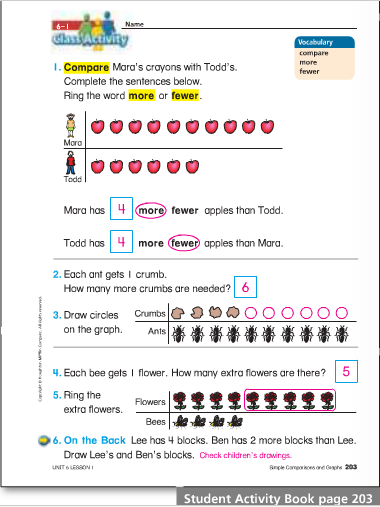
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**3. Effective teachers plan for instruction.**

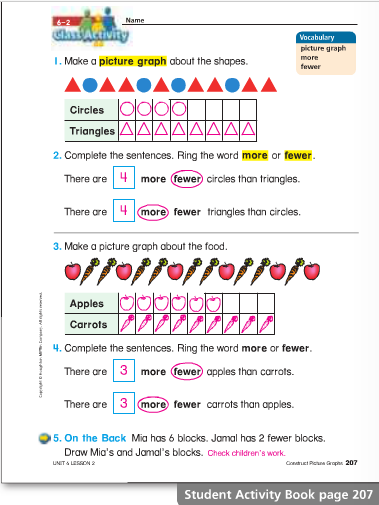
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| **3.1 i) Title and duration of lesson:** | #1 - Introduction to Graphical Representations, Picture Graphs and Comparing Two Things  Two math periods (one hour and fifteen minutes each) |
| **3.1 ii) Lesson-Level Learning Targets:** | Students will be able to read a two-row picture graph.  Students will be able to compare data in a two-row picture graph to determine which set has *more* or *fewer/less* and by how many.  **Related Unit-Level LTs and GLEs:**  **Skill #1 – 1.5.A. and Skill #2 – 1.5.B.** |
| **3.1 iii) Evidence of Learning for each LT:** | Students will identify what each set of pictorial data represents in a two-set graph (what is being compared and how many in each set).  Students will make comparisons statements based on the picture graphs. Their statements will indicate which set has *more* or fewer and *how many more/fewer* are shown in the graph. |
| **3.2 Assessments:** | Formative: Student Self-Assessment Checklist after completion of 6-1 Class Activity guide sheet |
| **3.3 i) Instructional Tasks:** | Teacher presents the American medal count by gender for the 2012 London Olympics in a picture graph format (Women had 29 gold medals, men had 17). Students will be asked to speculate what they think this is, what it is trying to tell us, and what each part signifies.  Next, using examples within the class, teacher creates a wide variety of picture graphs that represent two sets of data, which can be visually/physically represented in the classroom. Examples include: number of books in two students’ boxes, number of boys and girls, whether or not students have a sibling, people who like cats or dogs, etc.  Teacher will note the labels, different amounts and the total, and then prompt students to ask questions about the picture graphs, leading them toward comparison questions. Teacher will highlight the proper use of “more,” “fewer,” and “less” in comparison statements.  In pairs, students will use the two types of pattern blocks in their bag to create a physical, graphical representation (two lines of blocks). Together, pairs will identify the parts of the graph (types of blocks being compared and how many of each). Students will then compare the data to determine which has more/fewer and by how many. Students will be prompted to explain their methods and reasoning behind their findings.  Teacher will model and then students will complete the 6-1 Class Activity guide sheet. |
| **3.3 ii) Resources and Materials needed for lesson:** | Picture graph of Olympic medal count  Important Word Cards: *more*, *fewer, less* (written and visual)  Many examples of two things that can be numerically compared and visually represented in class.  6-1 Class Activity guide sheet and checklist for each student  Document camera to display modeling of completion of guide sheet  For more ideas for graphs see: Burns (2007) p. 105 |
| **3.3 iii) Co-teaching Strategies:** | One Teach, One Assist – One leads the instruction, while the other circulates and helps struggling students. The assistant can also take anecdotal notes about each student’s grasp on the concept of graphical representations. |



Student Self-Assessment Checklist:

* I can find the two things being compared in a picture graph.
* I can pick which one has more.
* I can pick which one has fewer.
* I can count how many more.
* I can count how many fewer.

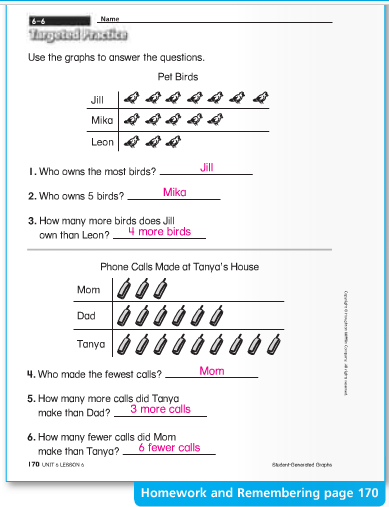
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| **3.1 i) Title and duration of lesson:** | #2 - Organizing Information into Picture Graphs and Comparing Two Things  2 math periods |
| **3.1 ii) Lesson-Level Learning Targets:** | Students will be able to construct a two-row picture graph using the proper format on a grid.  Students will be able to compare data in a two-row picture graph to determine which set has *more* or *fewer/less* and by how many.  **Related Unit-Level LTs and GLEs:**  **Skill #1 – 1.5.A., Skill #2 – 1.5.B., Skill #3 – 1.5.A** |
| **3.1 iii) Evidence of Learning for each LT:** | Students will create picture graphs that label and organize data on either side of a line (two-rows). Their graphs must have pictures organized neatly on the grid (one per space).  Students will make comparisons statements based on a two-row picture graphs. Their statements will indicate which set has *more* or *fewer*/less and *how many more/fewer* are shown in the graph. |
| **3.2 Assessments:** | Formative: Teacher Assessment Checklist after completion of 6-2 Class Activity guide sheet |
| **3.3 i) Instructional Tasks:** | Students are presented with a pretend scenario: they are planning for a party, which needs 8 balloons and 5 party hats. Their party favors are drawn scattered across the board, as a whole group, students will offer different ways to organize the data. Eventually, the teacher leads to the introduction of a 10 x 10 grid, and the proper format for organizing a picture graph (horizontal, labeled, one picture per space, etc.) Students make comparison statements about the balloons and hats using *more, fewer,* or *less*.  In pairs, students will then work together to create an accurate picture graph on their whiteboards based on a variety of situations presented. The teacher will present the two sets of data in a disorganized manner, so that students are encouraged to create order in a picture graph format. Students must show their whiteboards, which will help the teachers check for understanding. Students will be prompted to explain their methods and reasoning behind their findings.  Some situations include: number of fish and frogs in a pond, two foods in the shopping cart (grapes and peaches, cucumbers and carrots, etc), how many heads and tails are visible when you empty your pockets onto the table, etc.  Teacher will model and then students will complete the 6-2 Class Activity guide sheet. |
| **3.3 ii) Resources and Materials needed for lesson:** | 10 x 10 grid  Student whiteboards, pens and erasers  Visuals to depict the data in a disorganized fashion  Many examples of two things that can be numerically compared.  6-2 Class Activity guide sheet and checklist for each student  Document camera to display modeling of completion of guide sheet |
| **3.3 iii) Co-teaching Strategies:** | Team-teach – teachers will role-play the party scenario, engage and evaluate students in an equal capacity. They will alternate their presentation of disorganized data sets/situations. |



Teacher Assessment Checklist:

* The student completed the guide sheet with 80% accuracy.
* The pictures match the label.
* The student can reorganize data into a picture graph format – two rows, one picture per box, labeled
* The student can determine which has fewer and which has more.
* The student can calculate how many more or fewer.
  + Which method did they use?

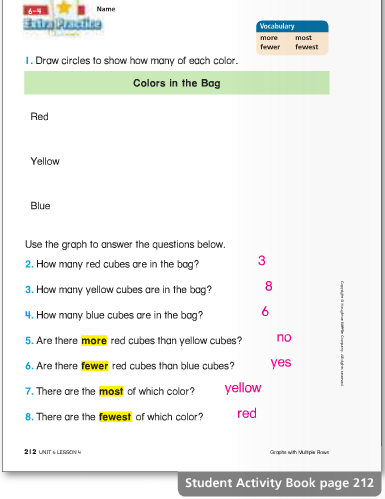
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| **3.1 i) Title and duration of lesson:** | #3 - Comparing More Than Two Things with Multiple-Row Picture Graphs  1 math period |
| **3.1 ii) Lesson-Level Learning Targets:** | Students will be able to read a multiple-row picture graph.  Students will be able to compare data in a two-row picture graph to determine which set has *most* or *fewest/least* and by how many.  **Related Unit-Level LTs and GLEs:**  **Skill #1 – 1.5.A. and Skill #2 – 1.5.B.** |
| **3.1 iii) Evidence of Learning for each LT:** | Students will identify what each set of pictorial data represents in a multiple-set graph (what the labels indicate and how many per item).  Students will answer comparison questions based on multiple-row picture graphs. Their responses will indicate which set has *most* or *fewest/least* and *how many more/fewer* when comparing two items within the larger set. |
| **3.2 Assessments:** | Formative: Teacher Assessment Checklist after completion of 6-6 Targeted Practice guide sheet |
| **3.3 i) Instructional Tasks:** | Teacher will call five students up to the front of the class, and randomly distribute different amounts of M&M’s to each student. The teacher will present a picture graphic representation of that situation and ask students what they notice. Hopefully students will notice that the format is similar to the two-row picture graph, but with more items being compared. With teacher guidance, the class will calculate how many M&M’s each of those students possesses, and create a multiple-row picture graph to convey that situation. Students will be prompted to explain their methods and reasoning behind their results. The teacher will note the importance of titles, labels, and identify what each set of pictures represents and how many more/fewer one student has compared to another. Students will then be introduced to the proper use of *most, fewest* and *least* when creating comparison statements for multiple items. Teacher may provide multiple examples for analysis, as necessary.  Teacher will model and then students will complete the 6-4 Targeted Practice guide sheet. |
| **3.3 ii) Resources and Materials needed for lesson:** | Important Word Cards: *most, fewest, least* (written and visual)  Many examples of multiple things that can be numerically compared.  6-6 Targeted Practice guide sheet and checklist  Document camera to display modeling of completion of guide sheet |
| **3.3 iii) Co-teaching Strategies:** | One teach, one observe – One teacher leads the instruction, while the other closely observes students’ comprehension and comfort levels with graphing multiple rows. This information will be used to determine if reteaching or small group explicit instruction is necessary. |

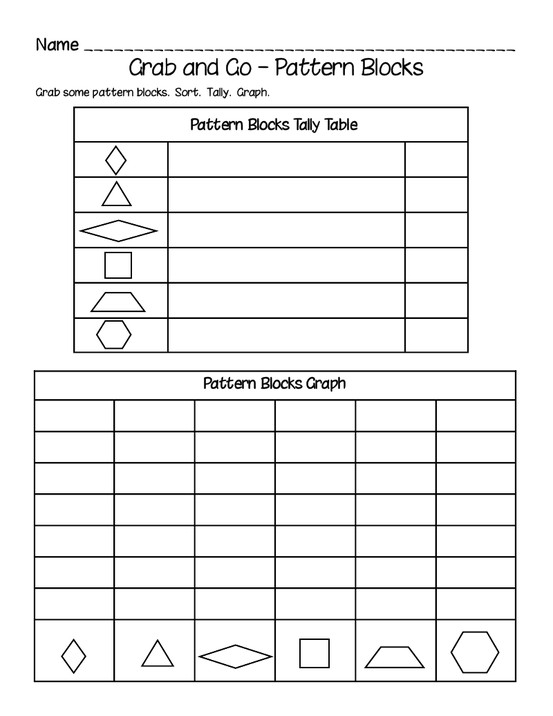


Teacher Assessment Checklist:

* The student completed the guide sheet with 80% accuracy.
* The student can determine which has fewer and which has more when comparing two items within a larger set (3).
* The student can calculate how many more or fewer.
  + Which method did they use?
* The student can determine which item has the most or least/fewest when examining the whole range of data.

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| **3.1 i) Title and duration of lesson:** | #4 – Collecting Data to Create Multiple Row Picture Graphs and Comparing More Than One Thing  2 math periods |
| **3.1 ii) Lesson-Level Learning Targets:** | Students will be able to collect/record data.  Students will be able to construct a multiple-row picture graph.  Students will be able to compare data in a multiple row picture graph to determine which set has *the most* or *fewest/least* and by how many.  **Related Unit-Level LTs and GLEs:**  **Skill #1 – 1.5.A., Skill #2 – 1.5.B., Skill #3 – 1.5.A** |
| **3.1 iii) Evidence of Learning for each LT:** | Students will record data with titles/labels and numerical representations (perhaps in an organized chart or list).  Students will create picture graphs that organize data into labeled rows, divided by lines. Their graphs must have pictures organized neatly on the grid (one per space).  Students will make comparisons statements based on the picture graphs. Their statements will indicate which set has the *most, fewest* or *least,* and *how many more/fewer* when comparing two items within the larger set. |
| **3.2 Assessments:** | Formative:  Teacher Assessment Checklist after completion of 6-4 Extra Practice and Grab and Go – Pattern Blocks guide sheets  Student Self-Assessment Checklist |
| **3.3 i) Instructional Tasks:** | Teacher will bring in a bouquet of flowers for the class and together the teachers will role-play a discussion of how multiple colors are present in the arrangement. Teachers will model how to count and record the number of flowers of each color, and identify this process as data collection. Teachers will then invite student volunteers to help create a multiple-row picture graph of that data. Students will be asked to verbalize comparison statements using *most, fewest, least, more, fewer or less.* They will also be prompted to explain their methods and reasoning.  Teacher will also present students with authentic uses of multiple-row picture graphs, by conducting a survey (favorite recess activity), recording the data neatly and representing it in a picture graph format.  Students will rotate through the following stations to explore the creation of multiple-row picture graphs. Students will organize the collection of items at each station into a proper picture graph format on their 10x 10 grids. Some station items include: multiple types of pattern blocks, different colored cubes, M&M’s, and Goldfish crackers, different types or colors of leaves, Legos of various lengths, etc.  Teacher will model and then students will complete the 6-4 Extra Practice and the Grab and Go guide sheets during the pattern blocks and colored cubes stations. |
| **3.3 ii) Resources and Materials needed for lesson:** | Station supplies – pattern blocks, colored cubes, M&M’s, Goldfish, different types/colored leaves, Legos of various lengths, 10 x 10 grids  Guide sheet and checklist for each student  Document camera to display modeling of completion of guide sheet |
| **3.3 iii) Co-teaching Strategies:** | Team-teach: Teachers will role-play and lead instruction together. Both teachers will complete assessments and examine self-assessments to determine if reteaching or small group explicit instruction is necessary. |

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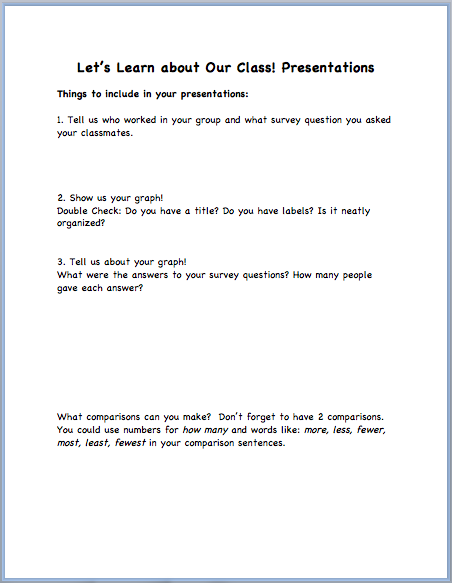
Teacher Assessment Checklist:

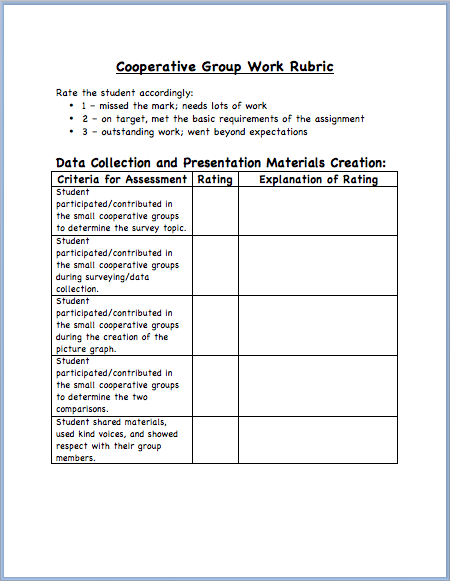
* The student collected data (recorded the number of each pattern blocks)
* The student represented the data in a multiple-row picture graph (student drew the correct amount of each pattern blocks in the grid provided)
* The student represented the data in a multiple-row picture graph (drew the correct number of each color in the bag)
* The student indicated which item had more/fewer and which had the most/fewest.

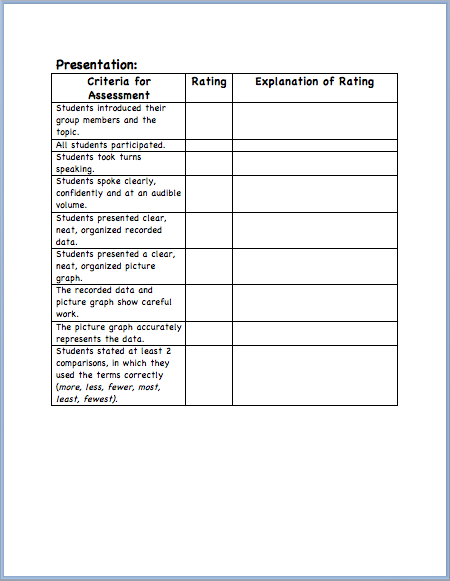
Student Assessment Checklist: (Rate on a scale of 1-5)

* How comfortable do you feel collecting data?
* How comfortable do you feel reading a picture graph?
* How comfortable do you feel using a picture graph to make a comparison using *more* or *fewer?*
* How comfortable do you feel using a picture graph to make a comparison using *most* or *least?*

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| **3.1 i) Title and duration of lesson:** | #5 - Cooperative Group Data Collection and Presentations  3 math periods |
| **3.1 ii) Lesson-Level Learning Targets:** | Students will be able to collect/record data about the class  Students will be able to construct a multiple-row picture graph.  Students will be able to compare data using calculated numbers and the terms: *more, fewer/less, most* or *fewest/least.*  Students will be able to present their data, graphs and comparisons to the class.  **Related Unit-Level LTs and GLEs:**  **Skill #1 – 1.5.A., Skill #2 – 1.5.B., Skill #3 – 1.5.A** |
| **3.1 iii) Evidence of Learning for each LT:** | Students will record data with titles/labels and numerical representations (perhaps in an organized chart or list).  Students will create final drafts of recorded data and picture graphs that organize data into labeled rows, divided by lines. Their graphs must have pictures organized neatly on the grid (one per space).  Students will state two comparisons statements based on the picture graphs. Their statements will indicate which set has the *most, fewest* or *least,* and *how many more/fewer* when comparing two items within the larger set.  In groups, students will present their graphs, their findings, and their comparisons. |
| **3.2 Assessments:** | Summative: Cooperative Group Work Rubric |
| **3.3 i) Instructional Tasks:** | Teachers will inform students that we will be doing projects to learn more about our classmates. Since work will be completed in a cooperative group format, both teachers will model how, as a group, people can collect data through surveys, create multiple-row picture graphs and make various types of comparisons using data collected from the class. The teachers’ example could be about different the number of students born in each month.  Students will then be divided into cooperative groups of four, with whom they choose what data they’d like to collect. Some surveys about their classmates could include: methods for getting to school, bedtimes, number or gender of siblings, hair color, eye color, favorite sports, school subjects, movies or foods.  As a group, students must conduct their surveys, record the data and create a picture graph of the information. Students must also present two comparison statements. The teacher will model how students can use the Let’s Learn About Our Class! Presentation guide sheet to organize their information and prepare for their presentations. If necessary roles (such as recorder, surveyor/speaker, etc.) may be assigned to facilitate cooperative group work. |
| **3.3 ii) Resources and Materials needed for lesson:** | Many examples of classroom data that could be explored.  Let’s Learn About Our Class! Presentation guide sheets for each group  Presentation rubric for each student  Document camera to model how the guide sheet may help organize the presentations. |
| **3.3 iii) Co-teaching Strategies:** | Team-Teach: Both teachers will provide instruction and guidance throughout the cooperative groups’ presentation presentations. Both teachers will assess the students as they engage in their inquiry-based preparations and present their findings. |

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**4. Effective teachers analyze and reflect.**

**4.1 Connections to Theory and Research:**

The lesson objectives, instructional tasks and assessments were designed to present the new concepts and skills about making comparisons with graphs in a comprehensible sequence that will help students build mathematical reasoning and problem-solving skills. Burns (2007) suggests that, “For younger children, graphing experiences best begin concretely,” (p.103) which is why this first grade unit plan incorporates the use of extensive tangible, concrete representations of graphs. Explorations using manipulatives, tangible realia, and people as data allow students to see the concrete, physical representation of the numerical and graphical formats. Based on Piaget’s work, these first grade students may be beginning to enter the concrete operational stage. This means that the children can begin to think logically, outside of abstractions (as cited in Crain, 2011). Since graphic representations (especially more advanced forms like pie charts, bar graphs, etc.) are concise, visual, yet abstract representations of information, I intentionally incorporated concrete data to try and deepen the students conceptual understanding in a developmentally appropriate way.

Another reason for using concrete materials is that they provide engaging, kinesthetic experiences for all students, where children begin to associate mathematical processing with everyday data, materials and situations. The kinesthetic experiences appeals to students of Bodily-Kinesthetic Intelligence, as well as energetic first graders; but it also allows all students to develop both conceptual and procedural mathematical understanding of graphing relationships (Armstrong, 1994). These concrete, comparison situations require students to develop a recognition that mathematics, and namely graphing, is a helpful tool to better understand that particular data, and consequently, the world around us. When students push past this recognition and learn to employ their procedural understandings of reading, interpreting and creating graphs, they begin to engage in authentic, meaningful mathematics (M. Roddy, personal communication, November 27, 2012).

As students develop their conceptual and procedural fluency in graphing and comparisons, students will be prompted to explain their reasoning behind their results. When students explain how they arrived at their answer and why their answer is reasonable, they engage in mathematical reasoning, a powerful life skill that facilitates problem-solving and rational, higher-order thinking. According to the National Council of Teachers of Mathematics (2000), “it is important to help them understand that assertions should always have reasons.” The presentation of one’s methodology and reasoning, not only helps deepen that student’s understanding, but also presents their metacognitive process as scaffolding to their peers. Also, Burns (2007) argues that interactions like these will show students that various methods can be valid, reasonable and appreciated (p.187).

**4.2 Academic Language:**

**Language functions:** Ability to communicate one’s ideas in small and whole group settings; ability to listen to teachers’ directions and input; ability to listen and respond cooperatively to peers; reading and writing abilities for completion of guide sheets; ability to interpret data

**Vocabulary:** Specialized vocabulary for comparisons (more, most, etc) and graphs (data, rows, etc); Academic vocabulary for activities or guide sheets (compare, organize, etc).

**Syntax:** Ability to create basic phrases or sentences for comprehensible completion of the guide sheets; ability to articulate descriptions of parts of a graph; ability to articulate comparisons with the proper sentence structure

**Elements of Discourse:** How to use new vocabulary in a sentence; how to contribute one’s ideas to collaborate with group members; how to present one’s work/research/findings

**How the instructional tasks help students meet these demands:**

All of the instructional activities were designed to ensure maximum comfort and participation for all students, especially the beginning readers, English Language Learners and students with special needs. Whenever new vocabulary (specialized or academic) arises, the lesson format guarantees that students will be able to access all new vocabulary through oral, written or visual descriptions. The teacher’s presentation of the Important Word Cards allows students to access this new word, skill or concept, regardless of their abilities in English literacy.

I included multiple opportunities for students to work with their peers in partners and small groups. This strategy builds off of their strong social skills, while providing support for English Language Learners and struggling students. The group work allows students to scaffold each other’s comprehension of graphic representations and comparisons, as well as their ability to communicate their findings through writing or presentations. The outline of daily lessons also allows for enough time and flexibility that groups can practice their presentations. This provides comfort and support for hesitant public speakers, as well as those in need of language supports.

Finally, I believe that this topic in general suits the needs of English Language learners because picture graphs inherently incorporate the use of visual representations, a commonly used language support for students. Since the ELL students in my classroom are familiar with numerical and visual representations, the extensive use of those presentations during this unit should be beneficial for all learners, especially those needing English support.

**4.3 Special Needs:**

This first grade class consists of many English Language Learners, which is why all of the instructional tasks were designed with many supports for the academic language demands (as stated in the previous section.) In addition to English Language Learners, there are other special needs apparent in the classroom, even though their early age prevents many from being formally identified. There are a few students whose speech is being evaluated because of lisps and other pronunciation concerns, which is why all presentation require students to prepare and practice prior to presentations. This will give them opportunities to practice pronunciation in addition to other presentation skills (confidence/presence/etc)

There is one student who currently receives IDEA support because of his difficulties with fine and gross motor skills, as well as behavior and attention-related concerns. The unit’s lessons also promote partner and group work, which builds off of his cooperative social strengths and desires (as he is also a new student). The guide sheets were also created with this student and other beginning/struggling writers in mind, to ensure their ability to communicate their understanding regardless of fine motor mastery. All of the guide sheets rely heavily on drawn or numerical responses to communicate one’s understanding, instead of through long written descriptions. Lastly, all directly will be presented orally and in writing, in a chunked format for easy comprehension and reference throughout the activity.

**5. Effective teachers take care of the mundane stuff too.**

**5.4 Annotated Bibliography:**

Armstrong, T. (1994) *Multiple intelligences in the classroom.* Alexandria, VA: ASCD

[Outlines the various types of Multiple Intelligences and effective activities that address those strengths. Used in lesson and assessment design and noted in 4.1 Theory]

Burns, M. (2007) *About teaching mathematics: a K-8 resource* (3rd ed.). Sausalito, CA: Math Solutions.

[Outlines mathematical pedagogy and practical, engaging classroom activities. Used theoretical framework and activity ideas for lesson design and noted in 4.1 Theory]

Crain, W. (2011) *Theories of development: concepts and applications* (6th ed.). New Jersey: Pearson Education Inc.

[Outlines a wide variety of theorists and their developmental theories. Used Piaget’s theories of developmental stages lesson design and noted in 4.1 Theory]

Fuson, K.C., The Children’s Math World Research Project. *Math Expressions: Teacher Edition* (Vol. 2). Orlando, FL: Houghton Mifflin Harcourt Publishing Company.

[The teacher’s edition of the mathematics curriculum used by Edmonds School District. Used for the majority of guide sheets and lesson format.]

Kathy, (August 22, 2011). Blog: First Grade… a la Carte. *Grab and Go – Pattern Blocks guide sheet.* Retrieved from: <http://firstgradealacarte.blogspot.com/2011/08/mouse-shapes.html>

[Used this teacher’s created worksheet as a guide sheet for an assessment.]

National Council of Teachers of Mathematics (NCTM), (2000). *Principles and standards of school mathematics.* Reston, VA: NCTM.

**[**Outlines standards and expectations for mathematics. Used to further understand mathematical reasoning and noted in 4.1 Theory.]

**5.5 Collaboration:** I did not collaborate with anyone for this unit plan.